

# CONTENTS

## Volume 36 Number 1

R. G. Burns	1	Publisher's note
D. S. Jenkinson, P. C. Brookes and D. S. Powlson	3	Soil Biology & Biochemistry Citation Classics
M. Šimek, D. Elhottová, F. Klimeš and D. W. Hopkins	5	Measuring soil microbial biomass
P. A. Thomas and D. M. E. Pearce	9	Emissions of N <sub>2</sub> O and CO <sub>2</sub> , denitrification measurements and soil properties in red clover and ryegrass stands
D. L. Johnson, K. L. Maguire, D. R. Anderson and S. P. McGrath	23	Role of cation exchange in preventing the decay of anoxic deep bog peat
A. M. O'Connell, T. S. Grove, D. S. Mendham and S. J. Rance	33	Enhanced dissipation of chrysene in planted soil: the impact of a rhizobial inoculum
B. A. Stevenson, G. P. Sparling, L. A. Schipper, B. P. Degens and L. C. Duncan	39	Impact of harvest residue management on soil nitrogen dynamics in <i>Eucalyptus globulus</i> plantations in south western Australia
M. Klammer and E. Bååth	49	Pasture and forest soil microbial communities show distinct patterns in their catabolic respiration responses at a landscape scale
C. Rumpel and I. Kögel-Knabner	57	Estimation of conversion factors for fungal biomass determination in compost using ergosterol and PLFA 18:2ω6,9
U. Rückauf, J. Augustin, R. Russow and W. Merbach	67	Microbial use of lignite compared to recent plant litter as substrates in reclaimed coal mine soils
J. Dai, T. Becquer, J. H. Rouiller, G. Reversat, F. Bernhard-Reversat, J. Nahmani and P. Lavelle	77	Nitrate removal from drained and reflooded fen soils affected by soil N transformation processes and plant uptake
S. M. Kristiansen, M. Brandt, E. M. Hansen, J. Magid and B. T. Christensen	91	Heavy metal accumulation by two earthworm species and its relationship to total and DTPA-extractable metals in soils
T. Nakano, T. Sawamoto, T. Morishita, G. Inoue and R. Hatano	99	<sup>13</sup> C signature of CO <sub>2</sub> evolved from incubated maize residues and maize-derived sheep faeces
K. A. Harrison and R. D. Bardgett	107	A comparison of regression methods for estimating soil-atmosphere diffusion gas fluxes by a closed-chamber technique
S. De Neve, S. G. Sáez, B. C. Daguilar, S. Sleutel and G. Hofman	115	Browsing by red deer negatively impacts on soil nitrogen availability in regenerating native forest
X. Cheng and C. S. Bledsoe	127	Manipulating N mineralization from high N crop residues using on- and off-farm organic materials
J. Goldack, C. Augustin, P. Lentzsch and A. Werner	135	Competition for inorganic and organic N by blue oak ( <i>Quercus douglasii</i> ) seedlings, an annual grass, and soil microorganisms in a pot study
D. Albers, S. Migge, M. Schaefer and S. Scheu	145	Pathozones of genetic subtypes of <i>Gaeumannomyces graminis</i> in cereals
E. Malosso, L. English, D. W. Hopkins and A. G. O'Donnell	155	Decomposition of beech leaves ( <i>Fagus sylvatica</i> ) and spruce needles ( <i>Picea abies</i> ) in pure and mixed stands of beech and spruce
C. Rumpel, K. Eusterhues and I. Kögel-Knabner	165	Use of <sup>13</sup> C-labelled plant materials and ergosterol, PLFA and NLFA analyses to investigate organic matter decomposition in Antarctic soil
G. H. R. Osler, S. Recous, I. R. P. Fillery, C. S. Gauci, C. Zhu and L. K. Abbott	177	Location and chemical composition of stabilized organic carbon in topsoil and subsoil horizons of two acid forest soils
	191	Correlation between mite community structure and gross N fluxes

K. H. Söderberg and E. Bååth

K. Yrjölä, R. Katainen, G. Jurgens,  
U. Saarela, A. Saano, M.  
Romantschuk and H. Fritze

W. Otten, K. Harris, I. M. Young,  
K. Ritz and C. A. Gilligan

J. Heinonsalo, P. Frey-Klett,  
J.-C. Pierrat, J.-L. Churin, D. Vairelles  
and J. Garbaye

J. P. Schimel, C. Bilbrough and  
J. M. Welker

N. Wrage, G. L. Velthof,  
H. J. Laanbroek and O. Oenema

G. Cao, Y. Tang, W. Mo, Y. Wang,  
Y. Li and X. Zhao

M. Olsrud and T. R. Christensen

A. Hadas, L. Kautsky, M. Goek and  
E. E. Kara

W.-X. Zhu and M. M. Carreiro

W.-X. Zhu and M. M. Carreiro

W. Wei-xiang, Y. Qing-fu, M. Hang,  
D. Xue-jun and J. Wen-ming

D. F. W. Naafs, P. F. van Bergen,  
S. J. Boogert and J. W. de Leeuw

T. E. C. Kraus, R. J. Zasoski,  
R. A. Dahlgren, W. R. Horwath and  
C. M. Preston

D. Djigal, A. Brauman, T. Diop,  
J. L. Chotte and C. Villenave

N. W. Oehrlé, L. S. Green, D. B. Karr  
and D. W. Emerich

A. Sturz, D. A. J. Ryan, A. D. Coffin,  
B. G. Matheson, W. J. Arsenault,  
J. Kimpinski and B. R. Christie

A. M. Fransson, S. Vinogradoff,  
D. L. Godbold, P. A. W. van Hees and  
D. L. Jones

A. G. Zavarzina, A. A. Leontievsky,  
L. A. Golovleva and S. Ya. Trofimov

J. L. Butler, P. J. Bottomley,  
S. M. Griffith and D. D. Myrold

A. Kulmatiski and K. H. Beard

195 The influence of nitrogen fertilisation on bacterial activity in the rhizosphere of barley

199 Wood ash fertilization alters the forest humus *Archaea* community

## Volume 36 Number 2

203 Preferential spread of the pathogenic fungus *Rhizoctonia solani* through structured soil

211 Fate, tree growth effect and potential impact on soil microbial communities of mycorrhizal and bacterial inoculation in a forest plantation

217 Increased snow depth affects microbial activity and nitrogen mineralization in two Arctic tundra communities

229 Nitrous oxide production in grassland soils: assessing the contribution of nitrifier denitrification

237 Grazing intensity alters soil respiration in an alpine meadow on the Tibetan plateau

245 Carbon cycling in subarctic tundra; seasonal variation in ecosystem partitioning based on in situ <sup>14</sup>C pulse-labelling

255 Rates of decomposition of plant residues and available nitrogen in soil, related to residue composition through simulation of carbon and nitrogen turnover

267 Temporal and spatial variations in nitrogen transformations in deciduous forest ecosystems along an urban-rural gradient

279 Variations of soluble organic nitrogen and microbial nitrogen in deciduous forest soils along an urban-rural gradient

289 Bt-transgenic rice straw affects the culturable microbiota and dehydrogenase and phosphatase activities in a flooded paddy soil

297 Solvent-extractable lipids in an acid andic forest soil; variations with depth and season

309 Carbon and nitrogen dynamics in a forest soil amended with purified tannins from different plant species

323 Influence of bacterial-feeding nematodes (Cephalobidae) on soil microbial communities during maize growth

333 The HFC/HCFC breakdown product trifluoroacetic acid (TFA) and its effects on the symbiosis between *Bradyrhizobium japonicum* and soybean (*Glycine max*)

343 Stimulating disease suppression in soils: sulphate fertilizers can increase biodiversity and antibiosis ability of root zone bacteria against *Streptomyces scabies*

353 Aluminum complexation suppresses citrate uptake by acid forest soil microorganisms

359 Biotransformation of soil humic acids by blue laccase of *Panus tigrinus* 8/18: an in vitro study

371 Distribution and turnover of recently fixed photosynthate in ryegrass rhizospheres

383 Reducing sampler error in soil research

## Volume 36 Number 3

S. Vetter, O. Fox, K. Ekschmitt and  
V. Wolters

387 Limitations of faunal effects on soil carbon flow: density dependence, biotic regulation and mutual inhibition

B. Glaser, M.-B. Turrión and K. Alef	399	Amino sugars and muramic acid—biomarkers for soil microbial community structure analysis
H. Ishimoto, Y. Fukushi and S. Tahara	409	Non-pathogenic <i>Fusarium</i> strains protect the seedlings of <i>Lepidium sativum</i> from <i>Pythium ultimum</i>
S. Kukkonen, A. Palojärvi, M. Rakkolainen and M. Vestberg	415	Peat amendment and production of different crop plants affect earthworm populations in field soil
C. Wittmann, M. A. Kähkönen, H. Ilvesniemi, J. Kurola and M. S. Salkinoja-Salonen	425	Areal activities and stratification of hydrolytic enzymes involved in the biochemical cycles of carbon, nitrogen, sulphur and phosphorus in podsolized boreal forest soils
H. Zhang and A. Brune	435	Characterization and partial purification of proteinases from the highly alkaline midgut of the humivorous larvae of <i>Pachnoda ephippiata</i> (Coleoptera: Scarabaeidae)
G. Renella, M. Mench, D. van der Lelie, G. Pietramellara, J. Ascher, M. T. Ceccherini, L. Landi and P. Nannipieri	443	Hydrolase activity, microbial biomass and community structure in long-term Cd-contaminated soils
C. Müller, R. J. Stevens, R. J. Laughlin and H.-J. Jäger	453	Microbial processes and the site of N <sub>2</sub> O production in a temperate grassland soil
P. Cannavo, A. Richaume and F. Lafolie	463	Fate of nitrogen and carbon in the vadose zone: in situ and laboratory measurements of seasonal variations in aerobic respiratory and denitrifying activities
W. L. Chao and S. F. Hsu	479	Response of the soil bacterial community to the addition of toluene and toluene-degrading bacteria
L. M. Macdonald, E. Paterson, L. A. Dawson and A. J. S. McDonald	489	Short-term effects of defoliation on the soil microbial community associated with two contrasting <i>Lolium perenne</i> cultivars
T. A. Spedding, C. Hamel, G. R. Mehuys and C. A. Madramootoo	499	Soil microbial dynamics in maize-growing soil under different tillage and residue management systems
R. E. Murray and R. Knowles	513	Trace amounts of O <sub>2</sub> affect NO and N <sub>2</sub> O production during denitrifying enzyme activity (DEA) assays
M. Stemmer	519	Multiple-substrate enzyme assays: a useful approach for profiling enzyme activity in soils?
S. E. Leckie, C. E. Prescott, S. J. Grayston, J. D. Neufeld and W. W. Mohn	529	Comparison of chloroform fumigation-extraction, phospholipid fatty acid, and DNA methods to determine microbial biomass in forest humus
A. M. Treonis, N. J. Ostle, A. W. Stott, R. Primrose, S. J. Grayston and P. Ineson	533	Identification of groups of metabolically-active rhizosphere micro-organisms by stable isotope probing of PLFAs
K. R. Dabiré and T. Mateille	539	Soil texture and irrigation influence the transport and the development of <i>Pasteuria penetrans</i> , a bacterial parasite of root-knot nematodes
P. J. Murray, D. J. Hatch, E. R. Dixon, R. J. Stevens, R. J. Laughlin and S. C. Jarvis	545	Denitrification potential in a grassland subsoil: effect of carbon substrates
R. Pavel, J. Doyle and Y. Steinberger	549	Seasonal patterns of cellulase concentration in desert soil
R. D. Bardgett and L. R. Walker	555	Impact of coloniser plant species on the development of decomposer microbial communities following deglaciation

#### Volume 36 Number 4

R. E. Casey, M. D. Taylor and S. J. Klaine	561	Publisher's Acknowledgement
Q. Li, H. L. Allen and A. G. Wollum II	563	Localization of denitrification activity in macropores of a riparian wetland
	571	Microbial biomass and bacterial functional diversity in forest soils: effects of organic matter removal, compaction, and vegetation control

- A. S. Allen and W. H. Schlesinger 581 Nutrient limitations to soil microbial biomass and activity in loblolly pine forests
- C. Kampichler, J. Rolschewski, D. P. Donnelly and L. Boddy 591 Collembolan grazing affects the growth strategy of the cord-forming fungus *Hypholoma fasciculare*
- C. H. E. Stark, L. M. Condon, A. Stewart, H. J. Di and M. O'Callaghan 601 Small-scale spatial variability of selected soil biological properties
- G. Sjöberg, H. Knicker, S. I. Nilsson and D. Berggren 609 Impact of long-term N fertilization on the structural composition of spruce litter and mor humus
- C. Müller, R. J. Stevens and R. J. Laughlin 619 A  $^{15}\text{N}$  tracing model to analyse N transformations in old grassland soil
- K. Broos, M. Uyttendaele, J. Mertens and E. Smolders 633 A survey of symbiotic nitrogen fixation by white clover grown on metal contaminated soils
- P. Grogan, A. Michelsen, P. Ambus and S. Jonasson 641 Freeze-thaw regime effects on carbon and nitrogen dynamics in sub-arctic heath tundra mesocosms
- W. M. Loya, L. C. Johnson and K. J. Nadelhoffer 655 Seasonal dynamics of leaf- and root-derived C in arctic tundra mesocosms
- F. Oehl, E. Frossard, A. Fließbach, D. Dubois and A. Oberson 667 Basal organic phosphorus mineralization in soils under different farming systems
- J. J. Levenfors, R. Hedman, C. Thaning, B. Gerhardsson and C. J. Welch 677 Broad-spectrum antifungal metabolites produced by the soil bacterium *Serratia plymuthica* A 153
- K. Khalil, B. Mary and P. Renault 687 Nitrous oxide production by nitrification and denitrification in soil aggregates as affected by  $\text{O}_2$  concentration
- S. S. Lazarova, R. G. M. de Goede, V. K. Peneva and T. Bongers 701 Spatial patterns of variation in the composition and structure of nematode communities in relation to different microhabitats: a case study of *Quercus daledupii* Ten. forest
- E. M. Baggs and H. Blum 713  $\text{CH}_4$  oxidation and emissions of  $\text{CH}_4$  and  $\text{N}_2\text{O}$  from *Lolium perenne* swards under elevated atmospheric  $\text{CO}_2$
- B.-M. Wilke, A. Gättinger, E. Fröhlich, L. Zelles and P. Gong 725 Phospholipid fatty acid composition of a 2,4,6-trinitrotoluene contaminated soil and an uncontaminated soil as affected by a humification remediation process
- J. Perkiömäki, T. Levula and H. Fritze 731 A reciprocal decomposition experiment of Scots pine needles 19 yr after wood ash fertilization
- J. Luxhøj and P. B. Brockhoff 735 Analysis of variance on gross nitrogen mineralization data

### Volume 36 Number 5

- M. Hirota, Y. Tang, Q. Hu, S. Hirata, T. Kato, W. Mo, G. Cao and S. Mariko 737 Methane emissions from different vegetation zones in a Qinghai-Tibetan Plateau wetland
- D. L. Jones, D. Shannon, D. V. Murphy and J. Farrar 749 Role of dissolved organic nitrogen (DON) in soil N cycling in grassland soils
- H. T. Koponen, L. Flöjt and P. J. Martikainen 757 Nitrous oxide emissions from agricultural soils at low temperatures: a laboratory microcosm study
- P. Wang, C. M. Changa, M. E. Watson, W. A. Dick, Y. Chen and H. A. J. Hoitink 767 Maturity indices for composted dairy and pig manures
- T. Teklay and A. Malmer 777 Decomposition of leaves from two indigenous trees of contrasting qualities under shaded-coffee and agricultural land-uses during the dry season at Wondo Genet, Ethiopia
- T. Nakamura, T. Motoyama, Y. Suzuki and I. Yamaguchi 787 Biotransformation of pentachlorophenol by Chinese chive and a recombinant derivative of its rhizosphere-competent microorganism, *Pseudomonas gladioli* M-2196
- D. Wagner, J. B. Jones and D. M. Gordon 797 Development of harvester ant colonies alters soil chemistry

- Å. R. Almås, L. R. Bakken and J. Mulder
- B. L. Turner, R. Baxter, N. Mahieu, S. Sjögersten and B. A. Whitton
- B. A. Rutz and T. L. Kieft
- U. Jäckel, S. Schnell and R. Conrad
- T. Pennanen, S. Caul, T. J. Daniell, B. S. Griffiths, K. Ritz and R. E. Wheatley
- M. Andersson, A. Michelsen, M. Jensen and A. Kjeller
- A. Agnelli, J. Ascher, G. Corti, M. T. Ceccherini, P. Nannipieri and G. Pietramellara
- J. Altamirano-Hernández, R. Fariás-Rodríguez, V. J. Jaramillo and J. J. Peña-Cabriales
- D. R. Singleton, P. F. Hendrix, D. C. Coleman and W. B. Whitman
- T. Müller and H. Höper
- E. K. Bünemann, D. A. Bossio, P. C. Smithson, E. Frossard and A. Oberson
- K. Zribi, R. Mhamdi, T. Huguet and M. E. Aouani
- E. Rodríguez, O. Nuero, F. Guillén, A. T. Martínez and M. J. Martínez
- A. Merino, P. Pérez-Batallón and F. Macías
- S. A. L. Hayward, M. R. Worland, P. Convey and J. S. Bale
- N. Millar and E. M. Baggs
- R. T. Conant, P. Dalla-Betta, C. C. Klopatek and J. M. Klopatek
- W. Cheng, H. Tsuruta, G. Chen and K. Yagi
- J. L. DeForest, D. R. Zak, K. S. Pregitzer and A. J. Burton
- Y. Huang, J. Zou, X. Zheng, Y. Wang and X. Xu
- M. Klamer and K. Hedlund
- J. Garcia-Pausas, P. Casals and J. Romanýà
- 805 Changes in tolerance of soil microbial communities in Zn and Cd contaminated soils
- 815 Phosphorus compounds in subarctic Fennoscandian soils at the mountain birch (*Betula pubescens*)—tundra ecotone
- 825 Phylogenetic characterization of dwarf archaea and bacteria from a semiarid soil
- 835 Microbial ethylene production and inhibition of methanotrophic activity in a deciduous forest soil
- 841 Community-level responses of metabolically-active soil microorganisms to the quantity and quality of substrate inputs
- 849 Tropical savannah woodland: effects of experimental fire on soil microorganisms and soil emissions of carbon dioxide
- 859 Distribution of microbial communities in a forest soil profile investigated by microbial biomass, soil respiration and DGGE of total and extracellular DNA
- 869 Seasonal variation in trehalose contents of roots and nodules of leguminous trees in a tropical deciduous forest in Mexico
- 873 Erratum to: Identification of uncultured bacteria tightly associated with the intestine of the earthworm *Lumbricus rubellus* (*Lumbricidae*; *Oligochaeta*) [Soil Biology & Biochem. 35(12):1547–55]
- ### Volume 36 Number 6
- 875 Publisher's note
- 877 Soil organic matter turnover as a function of the soil clay content: consequences for model applications
- 889 Microbial community composition and substrate use in a highly weathered soil as affected by crop rotation and P fertilization
- 903 Distribution and genetic diversity of rhizobia nodulating natural populations of *Medicago truncatula* in tunisian soils
- 909 Degradation of phenolic and non-phenolic aromatic pollutants by four *Pleurotus* species: the role of laccase and versatile peroxidase
- 917 Responses of soil organic matter and greenhouse gas fluxes to soil management and land use changes in a humid temperate region of southern Europe
- 927 Habitat moisture availability and the local distribution of the Antarctic Collembola *Cryptopygus antarcticus* and *Friesea grisea*
- 935 Chemical composition, or quality, of agroforestry residues influences N<sub>2</sub>O emissions after their addition to soil
- 945 Controls on soil respiration in semiarid soils
- 953 N<sub>2</sub>O and NO production in various Chinese agricultural soils by nitrification
- 965 Atmospheric nitrate deposition and the microbial degradation of cellobiose and vanillin in a northern hardwood forest
- 973 Nitrous oxide emissions as influenced by amendment of plant residues with different C:N ratios
- 983 Fungal diversity in set-aside agricultural soil investigated using terminal-restriction fragment length polymorphism
- 989 Litter decomposition and faunal activity in Mediterranean forest soils: effects of N content and the moss layer

- G. Bengtsson, A. Fossum and R. Lindqvist 999 Persistence of plasmid RP4 in *Pseudomonas putida* and loss of its expression of antibiotic resistance in a groundwater microcosm
- C. E. Lovelock, S. F. Wright and K. A. Nichols 1009 Using glomalin as an indicator for arbuscular mycorrhizal hyphal growth: an example from a tropical rain forest soil
- J.-A. Subke, I. Inglima, A. Peressotti, G. D. Vedove and M. F. Cotrufo 1013 A new technique to measure soil CO<sub>2</sub> efflux at constant CO<sub>2</sub> concentration

### Volume 36 Number 7

- I. A. Zasada and H. Ferris 1017 Nematode suppression with brassicaceous amendments: application based upon glucosinolate profiles
- F. Luis, G. Walther, H. Kellner, F. Martin and F. Buscot 1025 Diversity of laccase genes from basidiomycetes in a forest soil
- A. Saari, R. Rinnan and P. J. Martikainen 1037 Methane oxidation in boreal forest soils: kinetics and sensitivity to pH and ammonium
- H. Potila and T. Sarjala 1047 Seasonal fluctuation in microbial biomass and activity along a natural nitrogen gradient in a drained peatland
- L. Mei, L. Yang, D. Wang, B. Yin, J. Hu and S. Yin 1057 Nitrous oxide production and consumption in serially diluted soil suspensions as related to in situ N<sub>2</sub>O emission in submerged soils
- D. S. Mendham, E. C. Heagney, M. Corbeels, A. M. O'Connell, T. S. Grove and R. E. McMurtrie 1067 Soil particulate organic matter effects on nitrogen availability after afforestation with *Eucalyptus globulus*
- B. Foereid, A. de Neergaard and H. Høgh-Jensen 1075 Turnover of organic matter in a *Miscanthus* field: effect of time in *Miscanthus* cultivation and inorganic nitrogen supply
- S. Timonen, S. Christensen and F. Ekelund 1087 Distribution of protozoa in scots pine mycorrhizospheres
- R. Laiho, J. Laine, C. C. Trettin and L. Finér 1095 Scots pine litter decomposition along drainage succession and soil nutrient gradients in peatland forests, and the effects of inter-annual weather variation
- S. Criquet, E. Ferre, A. M. Farnet and J. Le petit 1111 Annual dynamics of phosphatase activities in an evergreen oak litter: influence of biotic and abiotic factors
- G. Certini, C. D. Campbell and A. C. Edwards 1119 Rock fragments in soil support a different microbial community from the fine earth
- S. Jonasson, J. Castro and A. Michelsen 1129 Litter, warming and plants affect respiration and allocation of soil microbial and plant C, N and P in arctic mesocosms
- N. Moritsuka, J. Yanai, K. Mori and T. Kosaki 1141 Biotic and abiotic processes of nitrogen immobilization in the soil-residue interface
- J. G. Bundy, G. I. Paton and C. D. Campbell 1149 Combined microbial community level and single species biosensor responses to monitor recovery of oil polluted soil
- A. Chabbi and C. Rumpel 1161 Decomposition of plant tissue submerged in an extremely acidic mining lake sediment: phenolic CuO-oxidation products and solid-state <sup>13</sup>C NMR spectroscopy
- B. A. Jaffee 1171 Wood, nematodes, and the nematode-trapping fungus *Arthrobotrys oligospora*
- A. Okito, B. R. J. Alves, S. Urquiaga and R. M. Boddey 1179 Isotopic fractionation during N<sub>2</sub> fixation by four tropical legumes

### Volume 36 Number 8

- J. A. Baldock and R. A. Ballard 1191 Fixed nitrogen in sustainable farming systems: a symposium examining factors influencing the extent of biological nitrogen fixation and its role in southern Australian agricultural systems. Setting the scene
- J. Brockwell 1195 Abundant, cheap nitrogen for Australian farmers: a history of Australian Nodulation and Nitrogen Fixation Conferences



- W. Chen, W. P. McCaughey and C. A. Grant  
A. M. Ridley, P. M. Mele and C. R. Beverly  
T. E. Crews, J. Brockwell and M. B. Peoples  
I. R. Kennedy, A. T. M. A. Choudhury and M. L. Kecskés  
L. Pereg-Gerk  
A. M. Bowman, W. Smith and J. Brockwell  
J. Howieson and R. Ballard  
R. Deaker, R. J. Roughley and I. R. Kennedy  
E. Hartley, L. G. Gemell and D. F. Herridge  
A. McInnes, J. E. Thies, L. K. Abbott and J. G. Howieson  
K. G. Nandasena, G. W. O'Hara, R. P. Tiwari, R. J. Yates, B. D. Kishinevsky and J. G. Howieson  
R. J. Yates, J. G. Howieson, K. G. Nandasena and G. W. O'Hara  
N. Charman and R. A. Ballard  
J. F. Slattery, D. J. Pearce and W. J. Slattery  
R. A. Ballard, N. Charman, A. McInnes and J. A. Davidson  
Y. Cheng, J. G. Howieson, G. W. O'Hara, E. L. J. Watkin, G. Souche, B. Jaillard and P. Hinsinger
- 1205 Pasture type and fertilization effects on N<sub>2</sub> fixation, N budgets and external energy inputs in western Canada  
1213 Legume-based farming in Southern Australia: developing sustainable systems to meet environmental challenges  
1223 Host-rhizobia interaction for effective inoculation: evaluation of the potential use of the ureide assay to monitor the symbiotic performance of tepary bean (*Phaseolus acutifolius* A. Gray)  
1229 Non-symbiotic bacterial diazotrophs in crop-farming systems: can their potential for plant growth promotion be better exploited?  
1245 Expression of *flcA*, a gene regulating differentiation and plant interaction in *Azospirillum*  
1253 Forecasting lucerne productivity under dryland farming conditions in central-western and western New South Wales  
1261 Optimising the legume symbiosis in stressful and competitive environments within southern Australia—some contemporary thoughts  
1275 Legume seed inoculation technology—a review  
1289 Lime pelleting inoculated serradella (*Ornithopus* spp.) increases nodulation and yield  
1295 Structure and diversity among rhizobial strains, populations and communities—a review  
1309 Symbiotic relationships and root nodule ultrastructure of the pasture legume *Biserrula pelecinus* L.—a new legume in agriculture  
1319 Root-nodule bacteria from indigenous legumes in the north-west of Western Australia and their interaction with exotic legumes  
1331 Burr medic (*Medicago polymorpha* L.) selections for improved N<sub>2</sub> fixation with naturalised soil rhizobia  
1339 Effects of resident rhizobial communities and soil type on the effective nodulation of pulse legumes  
1347 Size, symbiotic effectiveness and genetic diversity of field pea rhizobia (*Rhizobium leguminosarum* bv. *viciae*) populations in South Australian soils  
1357 Proton release by roots of *Medicago murex* and *Medicago sativa* growing in acidic conditions, and implications for rhizosphere pH changes and nodulation at low pH

### Volume 36 Number 9

- R. G. Burns  
J. N. Ladd, M. Amato and H. A. van Veen  
E. Karbozova-Salnikov, S. Funakawa, K. Akhmetov and T. Kosaki  
M. Pettersson and E. Bååth  
L. Grange and M. Hungria  
M. Kimura, J. Murase and Y. Lu
- 1367 Soil Biology & Biochemistry Citation Classics II  
1369 Soil microbial biomass: its assay and role in turnover of organic matter C and N  
1373 Soil organic matter status of Chernozem soil in North Kazakhstan: effects of summer fallow  
1383 Effects of the properties of the bacterial community on pH adaptation during recolonisation of a humus soil  
1389 Genetic diversity of indigenous common bean (*Phaseolus vulgaris*) rhizobia in two Brazilian ecosystems  
1399 Carbon cycling in rice field ecosystems in the context of input, decomposition and translocation of organic materials and the fates of their end products (CO<sub>2</sub> and CH<sub>4</sub>)

- F. Dassonville, J. J. Godon, P. Renault, A. Richaume and P. Cambier  
J. J. Rich and D. D. Myrold  
M. P. Waldrop, D. R. Zak and R. L. Sinsabaugh  
P. Garbeva, K. Voesenek and J. D. van Elsas  
F. Grenon, R. L. Bradley and B. D. Titus  
L. Aquilanti, F. Favilli and F. Clementi  
M. S. Castellazzi, P. C. Brookes and D. S. Jenkinson  
C. T. Garten Jr.  
F. A. de Alcântara, P. Buurman, N. Curi, A. E. F. Neto, B. van Lagen and E. L. Meijer  
R. L. Sinsabaugh, D. R. Zak, M. Gallo, C. Lauber and R. Amonette  
M. Iijima, T. Higuchi, A. Watanabe and A. G. Bengough  
G. I. Loranger, K. S. Pregitzer and J. S. King
- 1417 Microbial dynamics in an anaerobic soil slurry amended with glucose, and their dependence on geochemical processes  
1431 Community composition and activities of denitrifying bacteria from adjacent agricultural soil, riparian soil, and creek sediment in Oregon, USA  
1443 Microbial community response to nitrogen deposition in northern forest ecosystems  
1453 Quantitative detection and diversity of the pyrrolo-nitrin biosynthetic locus in soil under different treatments  
1465 Temperature sensitivity of mineral N transformation rates, and heterotrophic nitrification: possible factors controlling the post-disturbance mineral N flush in forest floors  
1475 Comparison of different strategies for isolation and preliminary identification of *Azotobacter* from soil samples  
1485 Distribution of microbial biomass down soil profiles under regenerating woodland  
1491 Potential net soil N mineralization and decomposition of glycine-<sup>13</sup>C in forest soils along an elevation gradient  
1497 Changes in soil organic matter composition after introduction of riparian vegetation on shores of hydroelectric reservoirs (South-east of Brazil)  
1509 Nitrogen deposition and dissolved organic carbon production in northern temperate forests  
1517 Method to quantify root border cells in sandy soil  
1521 Elevated CO<sub>2</sub> and O<sub>3</sub> concentrations differentially affect selected groups of the fauna in temperate forest soils

### Volume 36 Number 10

- R. G. Burns  
M. Andersson, A. Kjeller and S. Struwe  
C. Di Nardo, A. Cinquegrana, S. Papa, A. Fuggi and A. Fioretto  
Č. Novotný, K. Svobodová, P. Erbanová, T. Cajthaml, A. Kasinath, E. Lang and V. Šašek  
J. Nowak, K. Kaklewski and M. Ligocki  
M. B. Hinojosa, J. A. Carreira, R. García-Ruiz and R. P. Dick  
H. Šantrůvá, J. Vrba, T. Pícek and J. Kopáček  
C. Plaza, D. Hernández, J. C. García-Gil and A. Polo  
C. Mondini, F. Fornasier and T. Sinicco  
C. Crecchio, M. Curci, M. D. R. Pizzigallo, P. Ricciuti and P. Ruggiero
- 1525 Second Enzymes in the Environment Conference Prague, July 2003  
1527 Microbial enzyme activities in leaf litter, humus and mineral soil layers of European forests  
1539 Laccase and peroxidase isoenzymes during leaf litter decomposition of *Quercus ilex* in a Mediterranean ecosystem  
1545 Ligninolytic fungi in bioremediation: extracellular enzyme production and degradation rate  
1553 Influence of selenium on oxidoreductive enzymes activity in soil and in plants  
1559 Soil moisture pre-treatment effects on enzyme activities as indicators of heavy metal-contaminated and reclaimed soils  
1569 Soil biochemical activity and phosphorus transformations and losses from acidified forest soils  
1577 Microbial activity in pig slurry-amended soils under semiarid conditions  
1587 Enzymatic activity as a parameter for the characterization of the composting process  
1595 Effects of municipal solid waste compost amendments on soil enzyme activities and bacterial genetic diversity



- J. R. de Liphay, C. Enzinger, K. Johnsen, J. Aamand and S. J. Sørensen 1607 Impact of DNA extraction method on bacterial community composition measured by denaturing gradient gel electrophoresis
- E. Benitez, R. Melgar and R. Nogales 1615 Estimating soil resilience to a toxic organic waste by measuring enzyme activities
- S. Klose and H. A. Ajwa 1625 Enzyme activities in agricultural soils fumigated with methyl bromide alternatives
- M. B. Hinojosa, R. García-Ruiz, B. Viñegla and J. A. Carreira 1637 Microbiological rates and enzyme activities as indicators of functionality in soils affected by the Aznalcóllar toxic spill
- I. Gallizia, L. Vezzulli and M. Fabiano 1645 Oxygen supply for biostimulation of enzymatic activity in organic-rich marine ecosystems
- M. Rulík and R. Spáčil 1653 Extracellular enzyme activity within hyporheic sediments of a small lowland stream
- C. Freeman, N. J. Ostle, N. Fenner and H. Kang 1663 A regulatory role for phenol oxidase during decomposition in peatlands
- H. F. Jepsen and B. Jensen 1669 Accumulation of trehalose in the thermophilic fungus *Chaetomium thermophilum* var. *coprophilum* in response to heat or salt stress
- J. C. López-Gutiérrez, M. Toro and D. López-Hernández 1675 Seasonality of organic phosphorus mineralization in the rhizosphere of the native savanna grass, *Trachypogon plumosus*
- D. Tschérko, U. Hammesfahr, M.-C. Marx and E. Kandeler 1685 Shifts in rhizosphere microbial communities and enzyme activity of *Poa alpina* across an alpine chronosequence

#### Volume 36 Number 11

- A.-M. Fransson, I. Valeur and H. Wallander 1699 The wood-decaying fungus *Hygrophoropsis aurantiaca* increases P availability in acid forest humus soil, while N addition hampers this effect
- A. Michelsen, M. Andersson, M. Jensen, A. Kjeller and M. Gashew 1707 Carbon stocks, soil respiration and microbial biomass in fire-prone tropical grassland, woodland and forest ecosystems
- F. A. Rutigliano, R. D'Ascoli and A. V. De Santo 1719 Soil microbial metabolism and nutrient status in a Mediterranean area as affected by plant cover
- T. Hishi, M. Hirobe, R. Tateno and H. Takeda 1731 Spatial and temporal patterns of water-extractable organic carbon (WEOC) of surface mineral soil in a cool temperate forest ecosystem
- J. Diels, B. Vanlauwe, M. K. Van der Meersch, N. Sanginga and R. Merckx 1739 Long-term soil organic carbon dynamics in a subhumid tropical climate:  $^{13}\text{C}$  data in mixed  $\text{C}_3/\text{C}_4$  cropping and modeling with RothC
- G. Lear, M. J. Harbottle, C. J. van der Gast, S. A. Jackman, C. J. Knowles, G. Sills and I. P. Thompson 1751 The effect of electrokinetics on soil microbial communities
- G. Sjöberg, S. I. Nilsson, T. Persson and P. Karlsson 1761 Degradation of hemicellulose, cellulose and lignin in decomposing spruce needle litter in relation to N
- K. Schneider, S. Migge, R. A. Norton, S. Scheu, R. Langel, A. Reineking and M. Marau 1769 Trophic niche differentiation in soil microarthropods (Oribatida, Acari): evidence from stable isotope ratios ( $^{15}\text{N}/^{14}\text{N}$ )
- J. Kozdrój, J. T. Trevors and J. D. van Elsas 1775 Influence of introduced potential biocontrol agents on maize seedling growth and bacterial community structure in the rhizosphere
- G. D. Bending, M. K. Turner, F. Rayns, M.-C. Marx and M. Wood 1785 Microbial and biochemical soil quality indicators and their potential for differentiating areas under contrasting agricultural management regimes
- R. E. Drenovsky, G. N. Elliott, K. J. Graham and K. M. Scow 1793 Comparison of phospholipid fatty acid (PLFA) and total soil fatty acid methyl esters (TSFAME) for characterizing soil microbial communities

- M. Maljanen, V.-M. Komulainen, J. Hytönen, P. J. Martikainen and J. Laine 1801 Carbon dioxide, nitrous oxide and methane dynamics in boreal organic agricultural soils with different soil characteristics
- A. L. Wright, F. M. Hons and F. M. Rouquette Jr 1809 Long-term management impacts on soil carbon and nitrogen dynamics of grazed bermudagrass pastures
- M. Schädler, J. Alpehi, S. Scheu, R. Brandl and H. Auge 1817 Resource dynamics in an early-successional plant community are influenced by insect exclusion
- K. Sakamoto, T. Iijima and R. Higuchi 1827 Use of specific phospholipid fatty acids for identifying and quantifying the external hyphae of the arbuscular mycorrhizal fungus *Gigaspora rosea*
- Y. Lou, Z. Li, T. Zhang and Y. Liang 1835 CO<sub>2</sub> emissions from subtropical arable soils of China
- A. Papert, C.J. (Hans) Kok and J.D. (Dick) van Elsas 1843 Physiological and DNA fingerprinting of the bacterial community of *Meloidogyne fallax* egg masses
- M. J. I. Briones, J. Poskitt and N. Ostle 1851 Influence of warming and enchytraeid activities on soil CO<sub>2</sub> and CH<sub>4</sub> fluxes
- L. Caner, B. Zeller, E. Dambrine, J.-F. Ponge, M. Chauvat and C. Llanque 1861 Origin of the nitrogen assimilated by soil fauna living in decomposing beech litter
- C. Crecchio, A. Gelsomino, R. Ambrosoli, J. L. Minati and P. Ruggiero 1873 Functional and molecular responses of soil microbial communities under differing soil management practices
- U. Falkengren-Grerup, A. Michelsen, M. O. Olsson, C. Quarmby and D. Sleep 1885 Plant nitrate use in deciduous woodland: the relationship between leaf N, <sup>15</sup>N natural abundance of forbs and soil N mineralisation
- F.-M. Li, Q.-H. Song, P. K. Jjemba and Y.-C. Shi 1893 Dynamics of soil microbial biomass C and soil fertility in cropland mulched with plastic film in a semiarid agro-ecosystem
- E. L. Tilston, C. Halpin and D. W. Hopkins 1903 Genetic modifications to lignin biosynthesis in field-grown poplar trees have inconsistent effects on the rate of woody trunk decomposition
- K. H. Orwin and D. A. Wardle 1907 New indices for quantifying the resistance and resilience of soil biota to exogenous disturbances

### Volume 36 Number 12

- S. Klose, K. D. Wernecke and F. Makeschin 1913 Microbial activities in forest soils exposed to chronic depositions from a lignite power plant
- C. M. Bliss, N. B. Comerford and R. M. Muchovej 1925 Determination of microbial phosphorus K<sub>p</sub> factors in a spodosol: influence of extractant, water potential, and soil horizon
- A. Hermansson, J. S. K. Bäckman, B. H. Svensson and P.-E. Lindgren 1935 Quantification of ammonia-oxidising bacteria in limed and non-limed acidic coniferous forest soil using real-time PCR
- M. Suhadolc, R. Schroll, A. Gattinger, M. Schloter, J. C. Munch and D. Lestan 1943 Effects of modified Pb-, Zn-, and Cd- availability on the microbial communities and on the degradation of isoproturon in a heavy metal contaminated soil
- S. L. Dodd, R. A. Hill and A. Stewart 1955 A duplex-PCR bioassay to detect a *Trichoderma virens* biocontrol isolate in non-sterile soil
- Z. Li and K. Yagi 1967 Rice root-derived carbon input and its effect on decomposition of old soil carbon pool under elevated CO<sub>2</sub>
- J. J. J. Zacarias, J. Altamirano-Hernández and J. J. P. Cabriales 1975 Nitrogenase activity and trehalose content of nodules of drought-stressed common beans infected with effective (Fix<sup>+</sup>) and ineffective (Fix<sup>-</sup>) rhizobia
- M.-L. Rantalainen, L. Kontiöla, J. Haimi, H. Fritze and H. Setälä 1983 Influence of resource quality on the composition of soil decomposer community in fragmented and continuous habitat
- X. Chuankun, M. Minghe, Z. Leming and Z. Keqin 1997 Soil volatile fungistasis and volatile fungistatic compounds

K. Kreuzer, M. Bonkowski, R. Langel and S. Scheu	2005	Decomposer animals (Lumbricidae, Collembola) and organic matter distribution affect the performance of <i>Lolium perenne</i> (Poaceae) and <i>Trifolium repens</i> (Fabaceae)
E. Wolde-meskel, Z. Terefework, K. Lindström and Å. Frostegård	2013	Rhizobia nodulating African <i>Acacia</i> spp. and <i>Sesbania sesban</i> trees in southern Ethiopian soils are metabolically and genomically diverse
A. L. J. L. Foucher, T. Bongers, L. R. Noble and M. J. Wilson	2027	Assessment of nematode biodiversity using DGGE of 18S rDNA following extraction of nematodes from soil
C. Villenave, K. Ekschmitt, S. Nazaret and T. Bongers	2033	Interactions between nematodes and microbial communities in a tropical soil following manipulation of the soil food web
W. J. Wang, J. A. Baldock, R. C. Dalal and P. W. Moody	2045	Decomposition dynamics of plant materials in relation to nitrogen availability and biochemistry determined by NMR and wet-chemical analysis
D. S. Reay and D. B. Nedwell	2059	Methane oxidation in temperate soils: effects of inorganic N
L. M. Berglund, T. H. DeLuca and O. Zackrisson	2067	Activated carbon amendments to soil alters nitrification rates in Scots pine forests
F. Accoe, P. Boeckx, J. Busschaert, G. Hofman and O. Van Cleemput	2075	Gross N transformation rates and net N mineralisation rates related to the C and N contents of soil organic matter fractions in grassland soils of different age
T. R. Knight and R. P. Dick	2089	Differentiating microbial and stabilized $\beta$ -glucosidase activity relative to soil quality
W. R. Cookson and D. V. Murphy	2097	Quantifying the contribution of dissolved organic matter to soil nitrogen cycling using $^{15}\text{N}$ isotopic pool dilution
L. M. Avery, P. Hill, K. Killham and D. L. Jones	2101	<i>Escherichia coli</i> O157 survival following the surface and sub-surface application of human pathogen contaminated organic waste to soil
E. Bååth, L. O. Nilsson, H. Göransson and H. Wallander	2105	Can the extent of degradation of soil fungal mycelium during soil incubation be used to estimate ectomycorrhizal biomass in soil?
Y. Li, M. Xu, O. J. Sun and W. Cui	2111	Effects of root and litter exclusion on soil $\text{CO}_2$ efflux and microbial biomass in wet tropical forests
	I	Forthcoming Papers
	I	Volume Contents, Author and Keyword index (2004)



